

State of Bay-Delta Science, 2016
Summary for the Delta Plan Interagency Implementation Committee
May 9, 2016

The State of Bay-Delta Science (SBDS) is a synthesis of the current scientific understanding of the Delta, emphasizing progress made on key research questions and remaining knowledge gaps. The first edition of SBDS (SBDS, 2008, Healey et al. 2008; http://www.science.calwater.ca.gov/pdf/publications/sbds/sbds_final_update_122408.pdf), provided a system-wide baseline for the state of scientific knowledge of the system, and a reframing of the interaction between policy and science. In the new edition, various authors summarize the state of science in relation to a dozen issues in the Delta. Paper topics were chosen after surveying senior scientists and managers in the Delta to identify the most topical science issues. The introductory essay is intended to set the stage for the topic-focused papers that follow by providing a brief description of the Delta and its ecology, linking issues to individual papers where appropriate. In addition, a previously published paper (*Challenges facing the Sacramento-San Joaquin Delta: Complex, chaotic, or simply cantankerous?*, Luoma et al. 2015; <http://escholarship.org/uc/item/3nd0r71d>) describes the challenges facing water and environmental managers in the Delta and a final paper (Dettinger et al. in prep.) will synthesize the main advances in scientific understanding over the past decade and their policy implications. The primary audience for these papers is managers and policy makers whereas scientists are the primary audience for the topic focused papers. The papers will be distributed between at least two editions of the *San Francisco Estuary and Watershed Science (SFEWS)* online journal and will be accessible as a package electronically.

Planned Chapters for *The State of Bay-Delta Science, 2016*

(Notes: chapter titles subject to change; chapters will be published following peer review and acceptance by SFEWS)

The State of Bay Delta Science 2016 – An Introduction

Michael Healey, Peter Goodwin, Michael Dettinger, Richard Norgaard

Challenges facing the Sacramento-San Joaquin Delta: Complex, chaotic, or simply cantankerous?

Sam Luoma, Cliff Dahm, Michael Healey, Johnnie Moore

Delta smelt: Life history and decline of a once abundant species in the San Francisco Estuary

Peter Moyle, John Durand, Larry Brown, Jim Hobbs

Anadromous salmonids in the Delta: new science 2006-2016

Russ Perry, Rebecca Buchanan, Pat Brandes, Jon Burau, and Josh Israel

Predation on fishes in the Sacramento-San Joaquin Delta: Current knowledge and future directions

Gary Grossman

The Delta as changing landscapes

John Wiens, Letitia Grenier, Robin Grossinger, Michael Healey

Delta food webs past and present

Larry Brown, Wim Kimmerer, Louise Conrad, Sarah Lesmeister, Anke Mueller-Solger

Climate change and the Delta

Mike Dettinger, Jamie Anderson, Michael Anderson, Larry Brown, Daniel Cayan, Ed Maurer

Recent advances in understanding flow dynamics and transport of water-quality constituents in the Sacramento-San Joaquin River Delta

David Schoellhamer, Scott Wright, Stephen Monismith, Brian Bergamaschi

An overview of multi-dimensional models of the Sacramento-San Joaquin Delta: What they can tell us about the distribution and movement of fish and food organisms and how future Delta conditions will affect fish and water supply

Michael MacWilliams, Eli Ateljevich, Stephen Monismith, Chris Enright

Water supply reliability and the Sacramento-San Joaquin Delta.

Jay Lund

Water quality, contaminants and their effects on Delta species and water supply.

Richard Connon, Stephanie Fong, Inge Werner, Jay Davis, Lynda Smith, Val Connor

Levee System Vulnerability

Steve Deverel, Sandra Bachand, Jonathan Stewart, Scott Brandenburg, Gilbert Cosio (tentative)

Nutrient dynamics of the Delta: Effects of primary producers

Cliff Dahm, Alex Parker, Brian Bergamaschi

One Delta, One Science: the need, early outcomes, and next steps

Peter Goodwin, Lindsay Correa

Recent discoveries that have changed our understanding of the Delta (SBDS Summary)

Michael Dettinger, Michael Healey, and Dick Norgaard